

Point Arguello. On the 9th it had moved slowly north-westward, lessening in energy, but ere its disintegration had given rise to a southeasterly gale of force 8 close in off the coast north of San Francisco.

On the 17th to 19th, in nearly the same region, stormy weather again occurred, in the lower quadrants of an elongated low pressure area with center in the Gulf of Alaska. During the 18th, which was the stormiest day, southeasterly gales occurred along the northern California coast, and gales of higher intensity were reported about midway between California and the Hawaiian Islands. The strongest winds, occurring in fierce morning squalls of hurricane force, were encountered by the American S. S. *Makiki* near 35° N., 141° W.

From the 11th to 15th, near midocean, cyclonic conditions were prevalent, and scattered gales of force 9 to 10 were reported daily from localities to the northward of about the 35th parallel, between about longitudes 175° W. and 170° E.

On the 19th and 20th the American S. S. *Admiral Halstead*, east-bound from the Philippines, ran into stormy weather to the northward of Midway Island. Near 33° N., 178° W., on the 19th, her barometer had fallen below 982 millibars (29 inches), and early on the following day she rode through northwesterly squalls of hurricane force.

From the 21st to 25th, while a succession of low centers appeared over a great extent of middle longitudes, ships reported gales in many localities, the positions of which may best be visualized by reference to the table of gales and storms. Among the ships experiencing the greatest stress of weather during this period may be mentioned the Japanese M. S. *Noto Maru*, Yokohama to San Francisco. This ship entered the gale region on the 20th not far from 37° N., 160° E. On the 22d, near 170° E., the wind force had increased to 10. On the 23d and 24th the winds on ship were of less intensity, but on the 25th, near 38° N., 164° W., with a low barometer of 962.1 millibars (28.41 inches), they had risen to their highest velocity, force 11. A special report on the storm by Third Officer H. S. Littlefair, of the American S. S. *President Van Buren*, Hong Kong to San Francisco, told of similar weather from the 22d to 25th, culminating in the heaviest gales, force 9 to 10, near 38° N., 157° W., on the 25th. It was in this storm, on the 25th, that the American S. S. *Emidio* had the lowest barometer of the month, with northerly gales of force 9-10, near 42° N., 163° W.

During the 28th a deep cyclone covered a great extent of the northeastern part of the ocean, centered at about 45° to 50° N., 155° to 165° W. During the day two vessels reported southeasterly gales of force 8 in the Gulf of Alaska, and two reported southeasterly gales of force 10 much farther southward, one near 50° N., 143° W., and the other near 42° N., 151° W. The storm went rapidly northeastward during the 29th.

Swiftsure Bank Lightship reported gales of force 8 on the 14th to 17th and on the 24th, and of force 10 on the 30th and 31st.

Tehuantepecers and Papagayos.—Owing to the southward extension of anticyclones into the Gulf of Mexico on several days of the month, an unusual number of "overflow northers" entered Pacific waters, resulting in gales, for the most part from the northeast, not only in the Gulf of Tehuantepec, but also west of Costa Rica, where they are known as Papagayos. The Tehuantepecers occurred as follows: of force 7 on the 12th; of force

8 on the 8th to 11th; of force 9 on the 18th to 20th. The Papagayos were observed as follows: of force 7 on the 10th and 20th; of force 8 on the 11th and 30th; of force 9 on the 12th.

Fog.—Very little fog was reported. It was observed on 3 days at the entrance to the Strait of Juan de Fuca; on 1 day off the Oregon coast; and on 1 day near 34° N., 146° W.

RIVER STAGES AND FLOODS

By BENNETT SWENSON

Precipitation during January 1941 was above normal in the upper half of the Mississippi, the middle and lower Missouri, the upper and middle Arkansas, the Rio Grande, the Gila and the Sacramento River basins; elsewhere the precipitation was generally below normal. Snow depths at the end of the month were below normal except in the following areas: Portions of the northeast with depths of 10 to over 30 inches, the extreme upper Mississippi Basin with more than 15 inches in northern Wisconsin and Minnesota, and portions of the Rocky and Sierras Mountain regions.

The temperature was above the average for the month over the country except in the extreme northeast. This was the second consecutive month of mild weather this winter.

The excessive rainfall resulted mainly in light to moderate floods at isolated points as follows:

Atlantic Slope drainage.—No floods of any consequence occurred in this area. The Santee River reached flood stage at Rimini and Ferguson, S. C., from January 2 to 5. The rise was due mainly to dam-water release. Flood stage was also reached in the Savannah River at Clyo, Ga., on January 12.

East Gulf of Mexico drainage.—A slight rise occurred in the Tombigbee River on January 6 but no overflow occurred. Flooding continued in the Pearl River Basin from December; at Pearl River, La., the stage fell below the flood level on January 12. The total losses, most of which occurred in December, were estimated at \$10,200. Warnings were issued well in advance in most instances and money value of property saved by flood warnings totalling \$6,700 has been reported.

Mississippi System.—Heavy rains in portions of Kansas brought the stages in the Osage and lower Neosho Rivers close to bankful from the 17-19, but no overflow occurred, except for a slight overflow in the Osage at La Cygne, Kans., where a crest of 25.5 feet (0.5 foot above flood stage) was reached on the 19th.

The Sulphur River in Texas was in flood at the beginning of the month, continuing until the 6th at Naples, Tex. Another rise near the end of the month resulted in a slight overflow at Ringo Crossing, Tex., on the 24th. Damages amounting to \$2,500 were reported.

West Gulf of Mexico drainage.—In the Trinity River at Trinidad, Tex., the stage was above flood stage from December 17 to January 10, the highest stage being 36.5 feet on December 24. High water continued in the lower Trinity River during November, December, and most of January, being above flood stage much of this time.

Some flooding occurred also in the Sabine and Guadalupe Rivers.

Pacific Slope drainage.—The Sacramento River again experienced flood stages in January but were slightly lower than in December. The waters of the previous flood had only partially receded when the rise of this month began,

so that much of the affected lowlands continued under water since December, such as the island tracts of Liberty and Prospect in the Yolo Bypass. The ultimate losses in these areas will depend on how soon the waters permanently recede so that crops may develop.

Estimated flood losses and savings, January 1941

River and basin	Tangible property	Matured crops	Livestock and other movable farm property	Suspension of business	Savings
<i>East Gulf of Mexico</i>					
Pearl River ¹		\$100	\$3,100	\$7,000	\$8,700
<i>West Gulf of Mexico</i>					
Sulphur River.....	\$200		300	2,000	5,000

¹ December and January.

FLOOD-STAGE REPORT JANUARY 1941

River and station	Flood stage	Above flood stages—dates		Crest	
		From—	To—	Stage	Date
ATLANTIC SLOPE DRAINAGE					
	<i>Feet</i>			<i>Feet</i>	
James: Columbia, Va.-----	10	(1)	1		
Santee:-----					
Rimini, S. C.-----	12	2	5	12.6	3
Ferguson, S. C.-----	12	4	5	12.0	5
Savannah: Clyo, Ga.-----	11	7	14	11.5	12
EAST GULF OF MEXICO DRAINAGE					
Pearl:-----					
Jackson, Miss.-----	18	(1)	6		
Monticello, Miss.-----	15	(1)	1		
Columbia, Miss.-----	17	(1)	1		
Pearl River, La.-----	12	(1)	12	15.1	2

¹ Continued from previous month.

FLOOD-STAGE REPORT JANUARY 1941—Continued

River and station	Flood stage	Above flood stages—dates		Crest	
		From—	To—	Stage	Date
MISSISSIPPI SYSTEM					
Missouri Basin					
Osage: La Cygne, Kans.....	Feet 25	19	19	Feet 25.5	19
Arkansas Basin					
Petit Jean: Danville, Ark.....	20	2	5	22.1	4
Red Basin					
Sulphur:					
Ringo Crossing, Tex.....	20	{ (1) 24	1 27	22.0	24
Naples, Tex.....	22	{ (1)	7	27.4	1
Lower Mississippi Basin					
Coldwater: Coldwater, Miss.....	13	{ 2 27	5 29	14.0 13.4	4 28
WEST GULF OF MEXICO DRAINAGE					
Sabine:					
Logansport, La.....	25	(1)	20	31.9	4
Bon Wier, Tex.....	21	(1)	2	21.2	1
Trinity:					
Trinidad, Tex.....	28	(1)	10	34.0	5
Long Lake, Tex.....	40	(1)	6	41.7	Dec. 31, 1
Liberty, Tex.....	24	(1)	24	26.1	1
Guadalupe: Victoria, Tex.....	21	15	17	25.2	17
PACIFIC SLOPE DRAINAGE					
Sacramento Basin					
Sacramento:					
Red Bluff, Calif.....	23	26	26	24.4	26
Knights Landing, Calif.....	30	26	30	30.6	27
Columbia Basin					
Long Tom: Monroe, Oreg.....	10	{ 18 27	22 28	11.7 10.0	20-21 27-28

¹ Continued from previous month.